**Using GIOVANNI for Analysis of Global Aerosol Emissions**

Aerosols and short-lived climate forcing agents complicate the process of predicting changes in climate. The investigation below will enable you access and study satellite data from air quality events that result in the release of aerosols.

**GIOVANNI** is an acronym for the GES-DISC (Goddard Earth Sciences Data and Information Services Center) Interactive Online Visualization ANd aNalysis Infrastructure. A GIOVANNI *Users Manual* can be found at: <http://disc.sci.gsfc.nasa.gov/giovanni/additional/users-manual>

**Selected Giovanni data sets for investigating climate change by educators and students is now available at:**

<http://gdata1-ts1.sci.gsfc.nasa.gov/daac-bin/G3/gui.cgi?instance_id=DICCE-G&gsid=__1306256266&selectedWSID=&app=&selectedMap>

***Procedure***

1: Select the following parameters in order to generate monthly maps of aerosol products emitted on a global scale.

* *Spatial*: Do not highlight an area of interest unless you would like to focus on a particular region.
  + *Aerosol:* Select the box for Aerosol Optical Depth at 550 nm

4. Next, select a temporal parameter. Select August 2010.

5. Next, select the preferred Visualization. Select Lat-Lon Map, Time-Averaged.

When investigating multiple months, you may choose from a variety of visualization options including:

* Animation
* Time Series Data Plots

6. Finally, click on Generate Visualization.

***Data Analysis***

1. In August 2010, where on the globe do you find elevated aerosol concentrations?

2. Pick one region of the globe that has an elevated aerosol concentration. Based on what you know about this region (geography, climate, culture, etc.) predict the likely nature of these aerosols (e.g. black carbon) and predict whether they would have a short-term warming or cooling effect.

3) On the following pages, Global Monthly Aerosol Data is available for each month of the year 2010. Observe these maps and describe how aerosol emissions change over the course of the year 2010.

3a) Which month(s) depicts higher aerosol emissions?

3b) What natural or man-made activities are likely responsible for these temporal changes in aerosol emissions?

4) *Time permiting*, perform a time series analysis of the year 2010 to generate a plot of this data in graphical form. Do these data correlate with what you observed from the maps?

 

 

 

 

 

 